

**REMARKS*****Status of the Claims***

Claims 1-20, 26-29, and new claims 30-34 are pending, with claims 1, 6, 16, 33 and 34 being independent. Without conceding the propriety of the rejections, claims 1, 6-20, 27, and 29 have been amended to even more clearly recite and distinctly claim the invention. New claims 30-34 have been added. Support for the amendments and new claims may be found in the original claims, as well as throughout the specification including, for example, at page 11, lines 4-7 and the Examples. Therefore, no new matter has been added.

Applicants also provide herewith a declaration under 37 C.F.R. § 1.132 by David Kohler, an expert in the field of fuels technology, demonstrating that triptane and 2,2,3-trimethylpentane would only be produced in extremely low levels in an alkylation unit using hydrogen fluoride or H<sub>2</sub>SO<sub>4</sub> as a catalyst, for example, in an alkylation unit in oil refineries. Accordingly, as would be readily understood to one of ordinary skill in the art, triptane and 2,2,3-trimethylpentane would not be considered light alkylate as disclosed in the present invention and as presently claimed.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments, the following remarks, and the attached declaration.

***Claim Rejections under 35 U.S.C. § 103(a)***

Claims 1-20 and 26-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 98/22556 (Clark) in view of Henderson (US 6,238,446). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

Clark discloses an unleaded aviation fuel composition having a motor octane number of at least 98 comprising triptane and/or 2,2,3-trimethylpentane and at least one saturated liquid aliphatic hydrocarbon having 4 to 10 carbon atoms, preferably 5 or 6 carbon atoms, wherein at least 30% by volume of the aviation composition is triptane and/or 2,2,3-trimethylpentane. (claim 1 and page 2, lines 13-29). Clark teaches that in modern day formulations tetraethyl lead is typically used to boost the octane quality of

the aviation gasoline to the desired level. (page 1, lines 22-23). Clark further teaches that due to environmental concerns of the effect of lead, alternatives to its use are sought and the invention of Clark addresses this need for an unleaded aviation gasoline of sufficiently high octane number.

Henderson relates to unleaded aviation gasoline compositions. Henderson discloses that the fuels of the invention are unleaded in the sense that a lead-containing antiknock agent is *not* deliberately added to the gasoline. Trace amounts of lead due to contamination of equipment or like circumstances are permissible and are not deemed excluded from the practice of the invention. (Column 4, Lines 28-33).

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references when combined must teach or suggest all the claim limitations. MPEP § 2143.

The presently claimed invention relates to aviation gasoline compositions and blends comprising greater than 0 and up to about 1 ml tetraethyl lead/gallon of aviation gasoline. Applicants respectfully submit that tetraethyl lead *is* a lead-containing antiknock agent and as such, *is* deliberately added to the presently claimed gasoline compositions and blends. Therefore, Applicants respectfully submit that presently claimed aviation gasoline compositions and blends comprising tetraethyl lead do not meet Henderson's definition of what is an unleaded aviation gasoline composition.

It is respectfully submitted that Clark in view of Henderson does not disclose or suggest all the claim limitations. Accordingly, it is respectfully submitted that even if there were some suggestion or motivation to combine the cited art and a reasonable expectation of success, the cited art when combined does not disclose or suggest the presently claimed gasoline compositions and blends and the presently claimed methods for preparing gasoline blends. It is respectfully submitted that neither Clark nor Henderson disclose or suggest gasoline compositions or blends comprising greater than 0 to about 1 ml tetraethyl lead/gallon of aviation gasoline composition/blend, wherein tetraethyl lead is an antiknock agent deliberately added to gasolines. Although the

Examiner contends that the language greater than 0 reads on lead as an impurity or on such amount that is negligible, as defined in Henderson, Applicants respectfully submit that the *deliberate* inclusion of tetraethyl lead prevents it from being in trace amounts as impurity or in such amount that is negligible. In addition, Applicants provide that Merriam-Webster defines “impure” as “mixed or impregnated with an extraneous and usually *unwanted* substance,” and “negligible” as “so small or *unimportant* or of so little consequence as to warrant little or no attention.” (<http://www.m-w.com/>). Accordingly, Applicants respectfully submit that neither Clark nor Henderson disclose or suggest gasoline compositions or blends comprising greater than 0 to about 1 ml tetraethyl lead/gallon of aviation gasoline composition/blend.

Applicants further respectfully submit that it would be improper to attempt to modify the *unleaded* aviation fuels as provided by Clark or Henderson by *deliberately* adding tetraethyl lead since an essential feature of these unleaded fuels would be changed, i.e., the composition would no longer be lead free. *See, e.g., In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir 1984) and MPEP 2143.01 (“If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.”). Accordingly, Applicants respectfully submit that neither Clark nor Henderson disclose or suggest the presently claimed gasoline compositions and blends and the presently claimed methods.

In addition, Applicants respectfully submit that neither Clark nor Henderson disclose or suggest gasoline compositions or blends comprising *light alkylate* produced in an alkylation unit using hydrogen fluoride or H<sub>2</sub>SO<sub>4</sub> as a catalyst. The unleaded aviation fuel composition of Clark is made by mixing triptane and/or 2,2,3-trimethylpentane with at least one saturated liquid aliphatic hydrocarbon such that *at least 30%* by volume of the aviation fuel composition is triptane and/or 2,2,3-trimethylpentane.

In contrast, the presently claimed aviation gasoline compositions and blends comprise iso-octane and light alkylate produced in an alkylation unit using hydrogen fluoride or H<sub>2</sub>SO<sub>4</sub> as a catalyst. Applicants submit that producing light alkylates using hydrogen fluoride or H<sub>2</sub>SO<sub>4</sub> as a catalyst produces only extremely low levels of triptane and 2,2,3-trimethylpentane. Accordingly, Applicants submit that the presently claimed

light alkylates produced in an alkylation unit using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst contain only extremely low levels of triptane and 2,2,3-trimethylpentane and thus, the presently claimed aviation gasoline composition and aviation gasoline blends, comprising light alkylate produced in an alkylation unit using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst, comprise only extremely low levels of triptane and 2,2,3-trimethylpentane.

Therefore, Applicants respectfully submit that neither Clark nor Henderson disclose or suggest gasoline compositions or blends comprising light alkylate produced in an alkylation unit using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst.

In this regard, Applicants provide herewith a declaration under 37 C.F.R. § 1.132 by David Kohler, an expert in the field of fuels technology, demonstrating that triptane and 2,2,3-trimethylpentane are only produced in extremely low levels in an alkylation unit in oil refineries using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst. Accordingly, triptane and 2,2,3-trimethylpentane are not light alkylate, produced in an alkylation unit using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst, as recited in the presently claimed invention. Therefore, Applicants respectfully submit that neither Clark nor Henderson disclose or suggest the presently claimed gasoline compositions and blends and the presently claimed methods.

Since neither Clark nor Henderson disclose or suggest the presently claimed gasoline compositions and blends comprising iso-octane, toluene,  $\text{C}_4$  to  $\text{C}_5$  paraffins, greater than 0 to about 1 ml tetraethyl lead/gallon of aviation gasoline composition/blend, and light alkylate produced in an alkylation unit using hydrogen fluoride or  $\text{H}_2\text{SO}_4$  as a catalyst and/or in an oil refinery, it is respectfully submitted that even if there were some suggestion or motivation to combine the cited art and a reasonable expectation of success, the cited art when combined does not disclose or suggest the presently claimed gasoline compositions and blends and the presently claimed methods for preparing gasoline blends. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

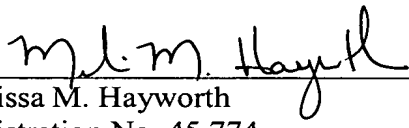
***Conclusion***

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim particularly preferred embodiments of Applicants' invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing amendments and remarks and the attached declaration, reconsideration of the claims and allowance of the subject application is earnestly solicited. The Examiner is invited to contact the undersigned at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

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